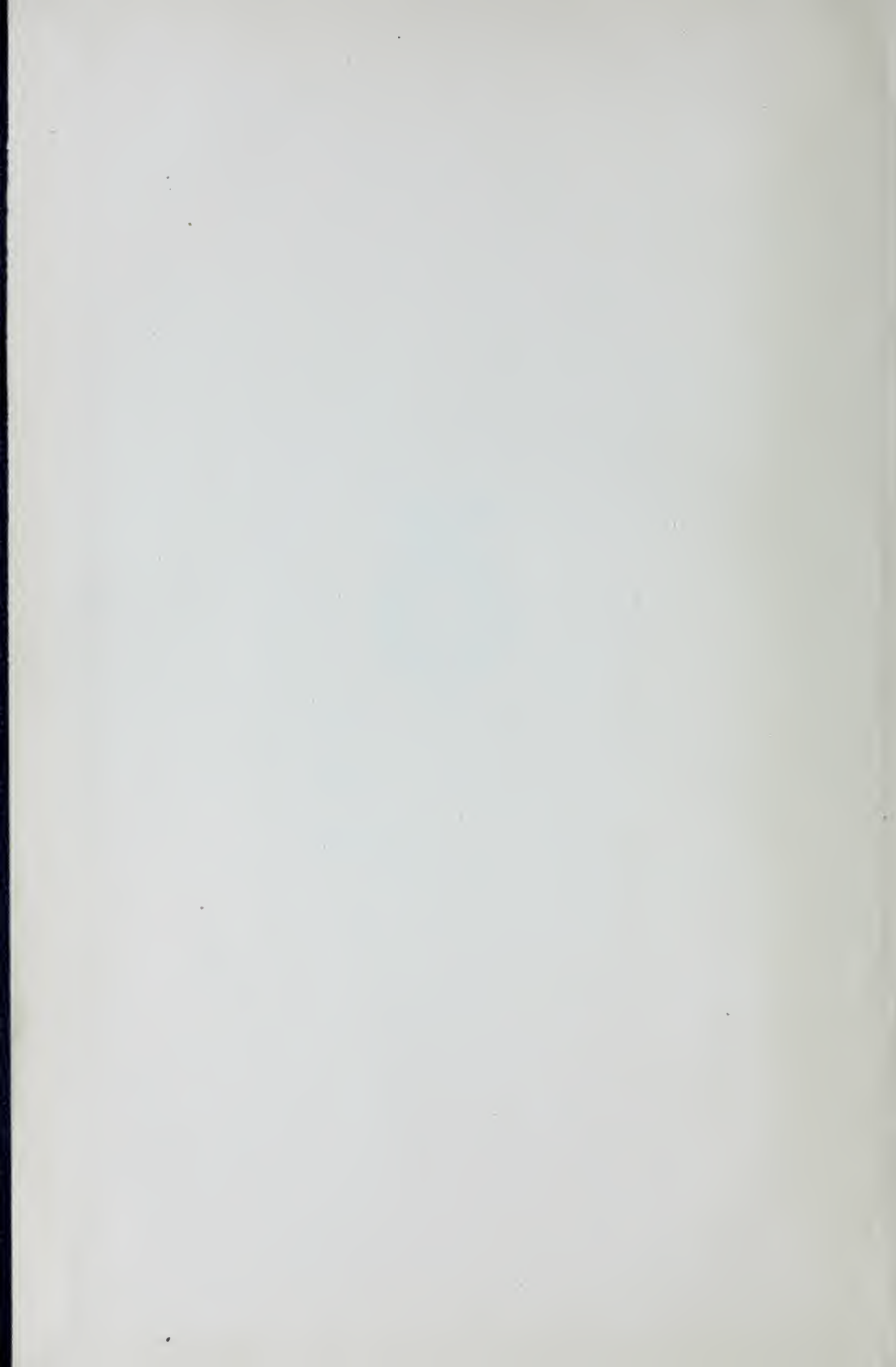
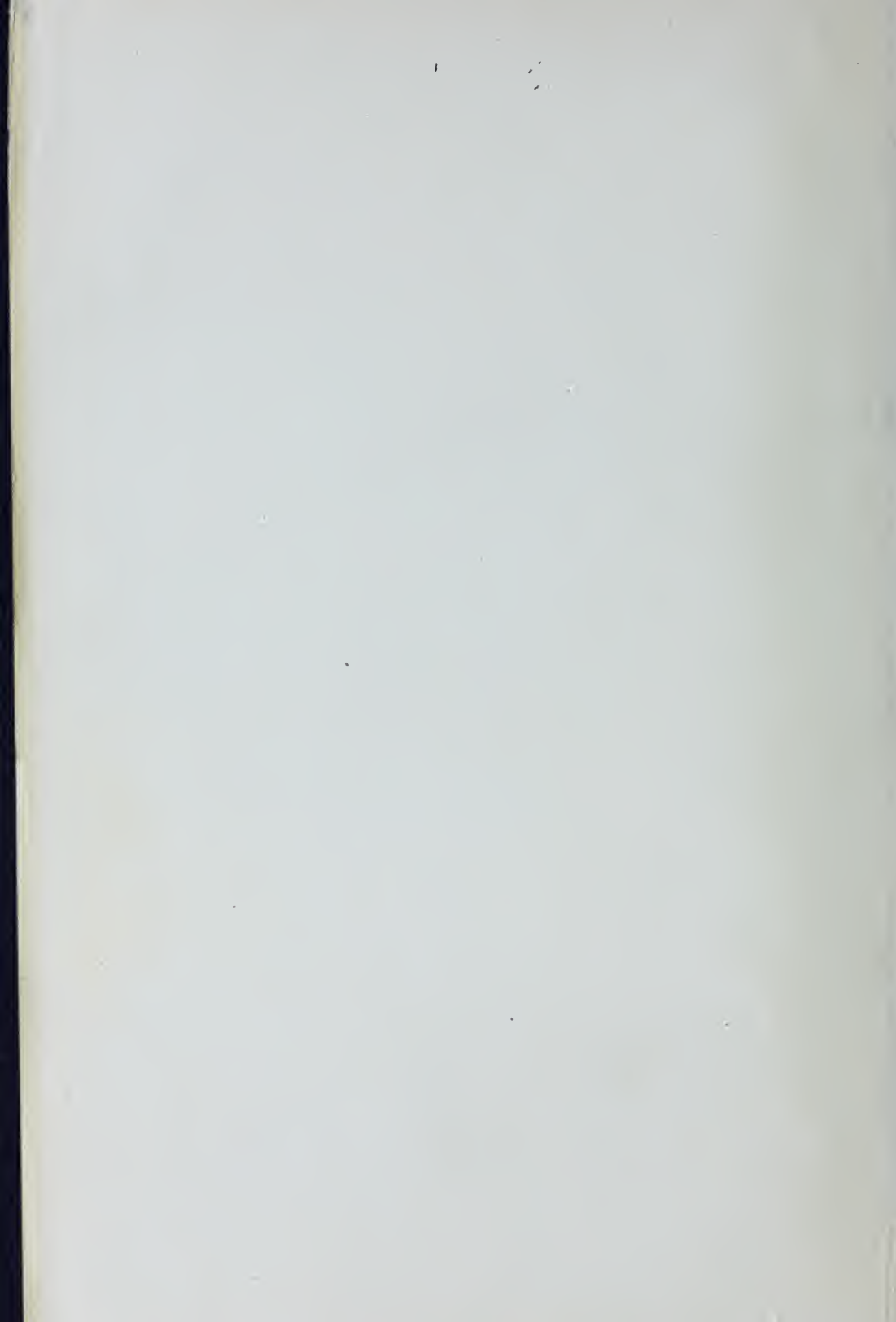


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GREEK FORESHADOWINGS

OF

MODERN METAPHYSICAL AND
EPISTEMOLOGICAL THOUGHT

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BY

LILLIAN KUPFER

(*A Thesis accepted for the Degree of Doctor of Philosophy*
in New York University, 1901)

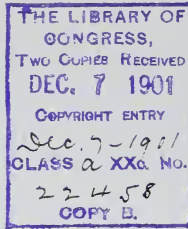
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INTRODUCTION

ONE of the first and most urgent tasks of philosophy is the endeavor to discover beneath the ceaseless flux of things in common experience some immutable foundation. Does the history of philosophy itself, amid its ever-changing systems, bring to view any abiding principles, or must we regard it simply as a record of arbitrary standpoints assumed without sufficient reason and severally abandoned? Does each new system, discarding all the labors of its predecessors, start afresh in its attempt to explain the mysteries of the universe or is the new philosophy a development and consummation of the old?

These questions must be faced by every student of the history of philosophy. If the earlier systems are to be entirely repudiated and only the latest products of speculation admitted within the province of validity, then indeed must philosophy be condemned as the most futile of sciences and its objects be acknowledged as forever unattainable.

To save philosophy from this reproach, we must find in it some permanent elements which persist amid its changes. Such abiding principles reveal themselves in certain fundamental conceptions which, originating with the earliest philosophers, have appeared again and again in the history of thought, at each revival in more definite form. To the objection that not one, but many and apparently opposing views of the world have been revived, we may answer that the impulses which at one time drive to the front one of these fundamental views and at another time another, may be explained by recognizing the fact that the spirit of the times, the state of culture, the social and political condition, and the aims, convictions, and

ideals of the people through whom a system of philosophy receives its expression form a vital factor in the evolution of its type, while the special interest or personality of the representative individual thinkers — another important factor — accounts for the contemporaneous appearance of systems which approach the ever-recurring problems of philosophy from opposite standpoints. But, since the opposing theories often reveal, on closer analysis, agreements as striking as are their differences, we may come to realize the fact that in the midst of many errors these rival systems all present some aspect of the truth.

The purpose of this paper is to point out some of the enduring features of philosophy by calling attention to certain approximations of Greek conceptions to modern speculative thought. We shall try to show that many germs of truth which for ages lay inert have revealed their fructifying power when stirred to renewed life and activity by some philosophic demand similar to that to which they owed their origin; and that the forms in which the fundamental problems of philosophy present themselves to the human mind, as well as the general direction by which their solution is approached, have, in the course of history, undergone no change so radical as to debar us from attributing to them some elements of permanent validity.

In order to keep the paper within proper bounds, no comparison will be attempted in the field of ethics, psychology, or sociology, the scope of the treatment being limited, as the title suggests, to the most important problems of metaphysics and epistemology.

I

THE ESSENCE OF THINGS

THE unreflecting mind accepts things as they appear, without question as to their origin or comment on their mutability. When the development of life, the movement of the heavenly bodies, the composition and dissolution of objects, and the countless phenomena of nature press for explanation, then, however crude may be the attempted solution of the problem, the first step has been taken in the direction of a philosophy. For a time further inquiry is silenced by the theory that supernatural beings are responsible for all such manifestations, but soon the spirit of investigation awakes in an effort to find some ultimate abiding principle from which may be directly deduced the changing phases of nature. It is at this point that the first philosophers appear upon the Greek stage with a philosophy of nature that directs its chief inquiry toward the origin of the universe.

The Ionians, — Thales, Anaximander, and Anaximenes, — starting with the supposition that there exists some cosmic substance out of which are developed the complex and multi-form objects of the universe, direct their energies to the discovery of the nature of this physical element. Thales decides upon water as his material substratum, Anaximander on an infinite matter undetermined in quality (*τὸ ἀπειρον*), and Anaximenes on air. Each of these elements is characterized by a mobility which lends color to the hylozoistic theory that it is endowed from eternity with the principle of life and motion.

Viewed from a different standpoint, the same problem receives through the Pythagoreans a totally different solution. While the Ionians were essentially physicists, the Pythago-

reans constituted a society of men banded together for the purpose of instituting moral reforms and cultivating the various arts and sciences. The mathematical sciences, in particular, were centered in this school; but the Pythagoreans were also far advanced in the knowledge of astronomy and music. Consequently they became impressed with the harmony and order which govern alike the motions of the heavenly bodies, the laws of music, and the moral life. But just as musical harmony is dependent on numerical relations, so, argue the Pythagoreans, is all harmony conditioned. (Thus they arrive at the conclusion that all things are ordered in numerical relations, from which they deduce the further proposition that number is the essence of physical reality, and unity the essence of number.) The whole world of becoming arises from the opposition of the one and the many. In the detailed working out of their theory, the Pythagoreans assign to each number some special significance for reality. Thus physical qualities are symbolized by the number five; light, health, and intellect by seven; love and wisdom by eight; perfection by ten, etc.

The starting point of Parmenides is the thought that only being (defined as a space-filling substance) can exist, that there is no non-being; in other words, no void. But if no non-being exists from which being can arise or into which it can disappear, then being must be eternal and unchangeable. Since without a void all motion is impossible, birth, change, plurality, and decay are mere appearance. The one eternal, indivisible, and indivisible being is conceived as a perfect sphere which includes within itself all possible determinations, even that of thought. As will be seen later, the antithesis of a permanent reality to the changing phenomena is closely connected with Parmenides' theory of knowledge, which contrasts the permanence and validity of knowledge derived from thought with the illusive nature of the content of sensation and experience.

Heraclitus, on the contrary, becomes so deeply impressed with the flux of things that, so far from considering change the illusion which Parmenides would make of it, he sees in it the sole reality. As the most mobile and variable of all elements,

he looks upon fire as the process of change, and therefore as the source of things. "All things are exchanged for fire, and fire for all things."¹ The transformations of fire are, first, the sea, and of the sea half is earth and half the lightning flash.² The world is an ever-living fire, kindled in due measure and in due measure extinguished."³ The one thing abiding amidst the changing phenomena is the fixed law of change or becoming. In this alone is the essence of things expressed.

From a combination of the Eleatic conception of an abiding being and the Heraclitic recognition of reality in becoming arise the philosophies of Empedocles, Anaxagoras, and the Atomists, which aim to reconcile the permanence of being with the change observable in phenomena. As a change in spatial relations seems to these philosophers the only change which can leave unaltered the qualities of being, they assume a number of primal, unchangeable elements, through the combination of which all individual things arise and through the separation of which they pass away. Four elements in the system of Empedocles are substituted for the one posited by the Ionians. "First I learned of the four roots of all things—fire and water and earth and the immense height of ether. From these have arisen whatever things have been, will be, or now are."⁴ Two forces, love and hate, applied respectively to the mixture and separation of the four unchangeable but divisible elements (*διζώματα*) are further assumed to account for the multiplicity of things.

These four roots of Empedocles are transformed by Anaxagoras into an unlimited number of unchangeable elements, qualitatively distinct and infinitely divisible, called by Anaxagoras himself *τὰ σπέρματα*, but by later writers *τὰ ὁμοιομερῆ*. Each of these elements is present in everything, the predominance of a particular element giving to any substance its essential characteristics. To the combination or separation of these elements in varying quantities, Anaxagoras, like Empedocles,

¹ Bywater, *Heracliti Ephesii Reliquiae*, Frag. XXII.

² *Ibid.*, Frag. XXI.

³ *Ibid.*, Frag. XX.

⁴ Mullach, *Fragmenta Philosophorum Graecorum*, vol. I, p. 2.

attributes all genesis and dissolution, but in the system of Anaxagoras there is but one active force, mind (*νοῦς*), the sole power sufficient to account for the design and harmony manifested in nature. Yet the *νοῦς* is, in turn, conceived as one of the elements, lighter and purer than all the rest, a thought stuff, which is the source of motion in the other elements.

The atoms of Leucippus and Democritus are in two respects distinguished from the *homoimeriai*. They are indivisible and alike in quality, differing only in form and magnitude, and they are endowed with an inherent motive force. Non-being, or the void, as the condition of motion, becomes, for the Atomists, a principle as necessary as being. The coming together of the atoms in space, through their inherent force, gives rise to all generation, and the separation of the combined atoms to all decay. It is the attribute of filling space, a quantitative not a qualitative determination, that constitutes the essence of being. We shall find that this metaphysical conclusion of the Atomists harmonizes with their epistemological theory that the qualities of things perceived by the senses are mere appearance, and that thought alone can apprehend the true reality — the atom forms.

Plato's philosophy is a completion and systematization of the views of Socrates. Like his teacher, he considers the moral life the essential thing, and exalts philosophy chiefly because he feels that virtue is dependent on knowledge. Plato agrees with Socrates that true knowledge is to be gained only through conceptual thinking, and that universality and invariability are essential characteristics of the concept. But if the objects toward which conceptual thinking is directed are to share this attribute of unchangeableness, they cannot be sought in the sensuous world. Good things and beautiful things arise and pass away; only ideal goodness or the idea of the good, ideal beauty or the idea of the beautiful, are eternal realities. Ideas alone, therefore, contain true being, or essence. They are the archetypes of which individual existences are imperfect copies. Matter and mind alike have only a secondary reality in so far as they participate in the ideas. The

Platonic ideas, although developed from the Socratic concepts, evolve in the course of Plato's speculations into metaphysical existences, independent of the thinking mind.

Aristotle cannot accept as true the idealism of Plato, because it fails to account adequately for the phenomenal world. His aim, like that of Empedocles, Anaxagoras, and the Atomists is so to conceive of being that becoming may be derived from it. This he accomplishes by a theory of development. Aristotle, like Plato, regards philosophy as the science of concepts, and finds the highest reality in forms or universals. But he does not underrate the value of individual existence. Although forms or ideas are conceived as the essence of things, they do not, in his view, exist apart from matter. Matter and form are inseparable, the true reality being the essence as unfolded in the phenomena. "Matter, the capacity, is molded into shape by form, the energy."¹ Becoming is the process through which matter, by taking on form, passes from mere potentiality to actuality. Everything in the universe is, accordingly, considered as both form and matter — form in relation to an existence lower in the scale of development, and matter in relation to something higher.

The Stoics, Epicureans, and Skeptics offer no new contribution to the conception of essence. In all these systems the emphasis is placed upon practical interests. The Stoic ethics demands that the world be conceived as the work of reason, and yet the Stoics regard all substances as bodies, including even the Universal Reason. The Epicureans adopt, with some modification, the doctrine of Democritus, which best meets the demands of their individualistic ethics, while the Skeptics look for repose of mind through suspense of judgment regarding the ultimate principles of things.

This brief review of the most significant of Greek theories concerning the essence of things prepares us for the establishment of such parallels as can be drawn between Greek and modern speculation.

To the early Ionians we are indebted chiefly for the attempt

¹ Aristotle, *Metaphysics*, Bk. VII, ch. II, § 3.

to reduce to some kind of unity the plurality observable in phenomena. Their notions of a physical substratum, though primitive, approach in principle the conceptions of our modern physicists.

The Pythagorean view of essence as number survives in modern philosophy in a tendency to consider the universe as quantitatively determined or to approach the questions of metaphysics with a mathematical equipment. With Kepler and Galileo, as with Pythagoras, it is the impression of order, harmony, and unity in nature which leads to the conception of the world as a system mathematically determined, although from the philosophy of these later thinkers the symbolism and mysticism of Pythagoreanism is entirely absent. Kepler declares that true knowledge exists only where quantities are cognizable, and that quantitative relations form the innermost essence of reality. He asserts, further, that our inclinations and aversions are dependent on an instinctive perception of proportions. Galileo believes that knowledge is possible only in relation to measurable objects, and that motion is the essential condition of matter. Hobbes, also, who defines philosophy as the reasoned knowledge of effects from causes and causes from effects, regards correct thinking as a mere combination and separation of conceptions, and knowledge as an addition of sensations. In his view all thought is simply calculation, and mathematics is the only road to science. All that exists is body, and all that occurs (psychical events included) some form of motion. It is his predilection for the mathematical method that leads Hobbes to his conception of essence as corporeal motion, to his mechanical and thoroughgoing materialistic view of the universe. So it is Descartes' endeavor to make metaphysics a science as exact as mathematics that leads him to seek for some indubitable first principle, self-evident as the axioms of geometry; while Spinoza places so great an emphasis on mathematics that he attempts to set forth his whole system of philosophy and ethics in the form of geometrical propositions. All our modern physicists, also, in so far as they adopt a philosophy, display a tendency

to explain the universe as determined by purely quantitative relations.

A philosophic demand for unity similar to that which induces Parmenides to reduce all thought and nature to one unchangeable and indivisible being, leads Spinoza to transcend the dualism of Descartes by postulating one single substance in the universe which manifests itself to us in the two attributes of extension and consciousness. The same demand for unity leads Spinoza, like Parmenides, to regard all change as an illusion of the senses, to adopt the rationalistic view that thought alone is capable of apprehending reality. A similar motive impels Fichte to seek to overcome the Kantian dualism of phenomena and noumena by regarding the world as the objectified ego and asserting the monism of the moral will. The endeavor to maintain a unity of nature and mind issues in Schelling in a system of identity which posits an absolute will as a neutral principle, the common ground of subject and object. In Hegel a similar philosophic need leads to the development of the panlogistic system, or system of absolute idealism, which recognizes reason as the unifying principle, manifesting itself in man as the essence of his thought and in nature as the law of its unfolding.

But Hegel, like Heraclitus, and unlike Parmenides, views the process of change as an essential factor of reality. "As the first concrete thought term," says Hegel, "becoming is the first adequate vehicle of truth. In the history of philosophy, this stage of the logical idea finds its analogue in the system of Heraclitus. When Heraclitus says 'all is flowing' (*πάντα ῥεῖ*), he enunciates becoming as the fundamental feature of all existence, whereas the Eleatics saw the only truth in rigid, processless being."¹

Like the atomic theories of the Greeks, modern atomism arises from an attempt to reconcile the principles of philosophy and science, from a desire to admit a permanent element in reality without denying the possibility of change. Among modern scientists there is general agreement that the reality

¹ Wallace, *The Logic of Hegel*, p. 168.

is to be sought in ultimate, indivisible elements, unalterable in substance, and that through the changing relation of these elements the world of objects arises. But the particular nature of the elements is differently conceived in the various fields of science. In many respects, the closest approximation to Greek atomism is the physicist's theory, which views the atoms as dynamical elements endowed with universal forces.

Anaxagoras and the Atomists have also a certain affinity with Herbart. He himself describes his theory as qualitative atomism, since his unchangeable elements are distinguished by qualitative differences like the *homoimeriai* of Anaxagoras, not by quantitative differentiation like the atoms of Democritus. Herbart's aim, like that of these earlier thinkers, is to free thought of the contradictions involved in the conception of change and of a manifold unity. To overcome these contradictions he posits a plurality of real beings, absolutely simple, inextended, and unchangeable, from the coming together of which arises the illusion of many qualities as existent in one thing. The activity of these "reals," as Herbart calls them, is directed toward self-preservation, that is, toward the protection of their simple quality from disturbances threatened by the opposing reals. All substances as perceived by us are merely accidental aspects of the reals (*zufällige Ansichten der Realen*).

The theory of Anaxagoras that every substance contains in itself something of every element faintly suggests the doctrine of Leibniz, that every monad is a mirror of the universe (*un miroir vivant perpétuel de l'univers*¹) or represents the universe from its particular point of view; although Anaxagoras applies this conception to the composite element, and Leibniz to the simple monad. Leibniz's theory of monads is the result of a partial agreement with, and a partial opposition to, the conceptions of both the Atomists and Descartes. With Descartes he agrees that substance must be independent, and with the Atomists he maintains that all objects are

¹ Leibniz, *La Monadologie*, § 56.

composed of a number of simple, indivisible, unchangeable units. But finding it impossible to conceive of any material unit as indivisible, he regards the monads as inextended, non-spatial substances, whose essence is not, like that of Descartes' substance, self-existence, but self-activity. The monads are conceived by Leibniz as forces, entelechies, or souls,¹ and are distinguished from one another only by the degree of clearness of their perceptions. They are entirely self-centered, receiving no influence from without, and the interaction between souls and bodies (which Descartes so inconsistently maintains between substances regarded by him as absolutely independent) is not real, but a mere appearance. The illusion is due to the fact that the monads have, by a preëstablished harmony instituted by God, been determined to follow a course of inner development such that the changes in one monad correspond so completely with the changes in others as to give the impression of reciprocal interaction.

Aristotle is suggested to us by the view of Leibniz "that essence is inseparable from existence, that whatever exists is by its very existence individual."² Indeed, the earlier philosophy of Leibniz holds unreservedly that "what Aristotle teaches concerning matter, form, position, nature, place, infinity, time, and motion, is, for the most part, immovably established."² Like Aristotle, also, Leibniz regards development as an essential factor of reality, but the detailed consideration of this point will be reserved for the section on Evolution.

Plato's chief contact with modern idealism, as represented by Berkeley, Fichte, Hegel, or Lotze, lies in his opposition to materialism, in his conception of reality as incorporeality, and in his ascription of the highest reality to the idea. In conceiving of the ideas, however, as metaphysical existences, independent of thought, Plato pursued a direction of speculation which our modern idealistic thinkers have not followed.

¹ Leibniz, *La Monadologie*, § 19.

² Ueberweg, *History of Philosophy*, vol. II, p. 103.

Such were the fruitful notions of the Greeks in regard to essence. Though their ideas were largely the result of penetrating insight, rather than of reasoned arguments, yet the philosophers of Greece reached by their rapid leaps of intuition some of the vantage grounds of truth toward which modern thinkers have struggled by the slower stages of observation and logical procedure.

II

THE WORLD GROUND

THE predecessors of Xenophanes in the field of Greek philosophy, if we may judge from the extant fragments of their works, accepted, or at least did not openly reject, the gods of the popular mythology. Xenophanes is the first for whom the question of the ultimate ground of the world assumes philosophical importance. There is difference of opinion among authorities as to whether he developed his idea of God from the philosophical conception of the unity of all being, or whether his dominant motive was theological and simply led the way to the philosophical monism of the later Eleatics. The starting point of Xenophanes, so far as revealed to us in the surviving fragments of his works, is a vigorous protest against the anthropomorphic polytheism of the Greeks. "God is one," he tells us, "supreme among gods and men, and not like mortals in body or in mind. But mortals suppose that the gods are born (as they themselves are), and that they wear men's clothing and have human voice and body. The whole of God sees, the whole perceives, the whole hears. Without effort he sets in motion all things by mind and thought."¹ These fragments embody the first expression of Greek monotheism in our tradition; but if we are to accept the testimony of antiquity which ascribes to Xenophanes, in addition to these thoughts, the doctrine that the all is One, and the One is God, then we must recognize in him, further, the first representative of the pantheistic theology.

This pantheistic tendency becomes more marked in Heraclitus, whose views of essence and of Deity coincide in the

¹ Mullach, *Fragmenta Philosophorum Graecorum*, vol. I, p. 101.

notion that becoming, or the cosmic process, is the ground of all things and the sole reality. "All things are one,"¹ he tells us. "This world, the same for all, neither any of the gods nor any man has made, but it always was and is and shall be, an ever-living fire."² "God is day and night, winter and summer, war and peace, plenty and want; but he assumes different forms, and every one gives him the name he pleases."³

With Anaxagoras we reach the conception that the controlling power in the world is *νοῦς*, or mind. We have already observed how the impulse to acknowledge the permanence of being without denying the reality of change leads Anaxagoras to the theory of the *homoiomeriai* and their changing relations. But he finds it necessary to posit further some principle of motion, which shall account for the order and design so manifest in nature; and, judging from the analogy of the human intellect, he concludes that the moving and ordering principle of the world must be conceived as Mind. This divine Mind brought order out of the original chaos, and fashioned all things with a view to the ends they were destined to serve. Nevertheless, the *νοῦς* is regarded by Anaxagoras as a thought substance, and there is no evidence to show that he conceived it as a self-conscious personality. "The truth probably is," says Zeller, "that Anaxagoras defined indeed his conception of *νοῦς* according to the analogy of the human mind; and in attributing thought to it ascribed to it a predicate which strictly belongs only to a personal being, but that he never consciously proposed to himself the question of its personality, and, in consequence, combined with these personal conceptions others which were taken from the analogy of impersonal forces and substances. . . . His spirit, in spite of its distinction in principle from the corporeal, is also conceived as a force of nature, and under such conditions as could apply neither to a personal nor to a purely spiritual nature."⁴

Plato explains the universe solely from the teleological

¹ Bywater, *Heracliti Ephesii Reliquiae*, Frag. I.

² *Ibid.*, Frag. XX.

³ *Ibid.*, Frag. XXXVI.

⁴ Zeller, *Greek Philosophy to the Time of Socrates*, vol. II, pp. 348, 349.

standpoint. Everything in the world exists as it does because it is best that it should so exist; all things are formed with a view to the idea of the good. But as the ideas are the sole realities, and the idea of the good is the highest of all, this view assumes a metaphysical significance in the conception that the Idea of the Good is the ground of all being; not the creator, but the final end of all phenomena. Thus the Idea of the Good becomes identified with the world-forming Reason, or with God, viewed both as the highest in the chain of ideas and the cause of all the other ideas. "The world," says Plato, "and all the animals and plants which grow upon the earth from seeds and roots, and all inanimate substances which form within the earth, are created by Divine Reason.¹ . . . The universe is governed by a marvelous intellect and wisdom.² . . . In God is no unrighteousness at all — he is altogether righteous, and there is nothing more like him than he is of us who is the most righteous."³ A hasty interpretation of these passages might lead us to conceive of Plato's God as a self-conscious personality, but the conclusion would scarcely be justified by the premises. For whatever metaphysical reality Plato may have attached to the ideas, it is difficult to believe that he conceived of them as conscious of themselves. It is probable that by Plato, as by Anaxagoras, the personality of God was neither affirmed nor denied, for the reason that the question never presented itself to his mind as a problem requiring solution.

The philosophy of Aristotle, which emphasizes the relation of form and matter, the individual and the universal, the moving and the moved, demands an immovable first principle as the source of all movement. Hence he conceives of the Deity as a first Mover, himself unmoved, an eternal, immaterial Form, a pure Actuality, a Being absolutely perfect. "There exists a certain immovable substance which possesses a subsistence separable from sensibles. It is devoid of parts and infinite."⁴ . . . That the final cause exists in things that

¹ Plato, *Sophist*, 265.

² *Philebus*, 28.

³ *Theaetetus*, 176.

⁴ Aristotle, *Metaphysics*, Bk. XI, ch. XII, § 8.

are immovable is manifest. That which first imparts motion does so as a thing that is loved, and that which has motion impressed on it imparts motion to other things.¹ . . . It is evident that that which understands is most divine and most entitled to reverence, and that it undergoes no change. We may assume that mind is cognizant of its own operations, if it really is that which is most superior and if perception amounts to the perception of a perception. The act of perception by the Mind is identical with the object of perception, and the first and actual perception by Mind of mind itself subsists throughout all eternity."² In this view of God as a spirit, whose sole object is his own thought, the thought of thought, Aristotle has reached the conception of the Deity as a self-conscious personality. Yet Aristotle's God is not a creator of the world in the usual acceptance of the term. He is a transcendent Spirit, standing in no active relation with man or with the world. He acts upon matter not in a mechanical way, but through the natural longing of matter after God. He is the final cause of the universe, but not its direct creator by any act of will.

All departments of philosophy are approached by the Stoics from the direction of ethics, their prime object being to make men free and independent of externals by teaching them to live a virtuous life, in other words, a life according to reason. But the dualism of Plato or of Aristotle, which places the sensuous world in opposition to the ideas, or matter in opposition to form, seems to them incompatible with their demand for the universal reign of reason. Seeking, therefore, for a unifying principle which shall satisfactorily cancel the apparent opposition, they reach the pantheistic conception of the unity of the universe with its final cause or ground. "God is spoken of as being Fire, Ether, Air, most commonly as being *πνεῦμα*, or Atmospheric-Current, pervading everything without exception, what is most base and ugly, as well as what is most beautiful. He is further described as the Soul, the Mind,

¹ Aristotle, *Metaphysics*, Bk. XI, ch. VII, § 3.

² *Ibid.*, Bk. XI, ch. IX, §§ 2-6.

or the Reason of the world; as a united whole containing in himself the germ of all things; as the connecting element in all things; as Universal Law, Nature, Destiny, Providence; as a perfect, happy, ever-kind, and all-knowing Being.”¹ From the variety of epithets used to describe God, we perceive that the Stoic conception of Deity involves a combination of materialistic and spiritualistic ideas. Paradoxical as it may appear to designate God in one statement as Air, Fire, Nature, and in another as Soul, Law, Destiny, or Providence, the two views are united by the Stoics in their fundamental idea of the universe as a harmonious and all-embracing unity.

The Epicureans look upon the world as a mechanism, and desire to know no more about its workings than appears to be essential for their happiness. Although Epicurus himself did not wholly renounce belief in the gods of the popular faith, the Epicurean philosophy has an avowed atheistical tendency, its aim being to free the mind from fear by denying the existence of supernatural causes. Lucretius, in his poetical exposition of Epicureanism, states emphatically that “the nature of the world has by no means been made for us by a divine power.”²

The aim of Skepticism, like that of Stoicism and Epicureanism, is mainly practical. The Skeptics seek happiness by way of tranquillity, and tranquillity through suspense of judgment. To justify this attitude they point out the contradictions involved in all the rival systems of philosophy. Among other criticisms they offer arguments to overthrow the ordinary conceptions of God, especially those of the Stoics. They point to the evil existent in the world as opposed to the theory of Design or Providence, and they call attention to contradictions in many of the accepted views of the Deity. If God is conceived as a separate, individual Being, they say, he cannot be regarded as infinite. If he is a living Being, he must be susceptible of change and subject to death. Since virtue consists in overcoming one's own imperfections, God cannot be both

¹ Zeller, *Stoics, Epicureans, and Sceptics*, pp. 148-150.

² Lucretius, *De Rerum Natura*, Bk. II, 180.

virtuous and perfect. If capable of receiving pleasure, he cannot be impervious to pain. Further difficulties appear in attempting to conceive of God as either limited or unlimited, the limited being incomplete and the unlimited immovable. The nature of God cannot therefore be expressed by any of the attributes commonly ascribed to him. The Skeptics do not deny the possibility of the existence of a being higher than man, but they refuse to grant that there must necessarily be a God conceived as a rational Being.

The motive of the Neoplatonic speculation proceeds from the Platonic view of the dualism and opposition of spirit and matter conceived as an antithesis of good and evil. Matter, as completely destitute of form and idea being regarded as the cause of all evil, the Neoplatonists wish to place God entirely beyond its sphere. Yet while they thus insist on the transcendency of God above the world, they wish, at the same time, like the Stoics, to view the world as a unity. From the union of these two motives comes the conception of the world as a continuous whole proceeding from and returning to God in a manner analogous to the emanation of light from the sun. As opposed to the many, the original Being is the One, as opposed to the finite, the Infinite; but it is impossible to attribute to him any definite characterization. God is exalted even above the ideas, which are emanations from the Deity, as the soul is an emanation from the ideas and the phenomenal world an emanation from the soul. Regarding all attributes as limitations of perfection, the Neoplatonists refuse to describe God by qualities of any kind, whether spiritual or material. God is not conscious, but transcends both the conscious and the unconscious; although the source of all intelligence and goodness, he himself is neither intelligent nor good. Thinking or willing cannot be exercised by God without being directed to some object beyond himself; but the assumption of such an object would detract from the absolutism of God. As superior to all ideas, he transcends all conceptions. As the one which precedes all things he is nothing, but as the source of all things he is everything. Notwithstanding the transcendence of God,

however, man's purest longing is directed toward a reunion with him. This becomes possible by an elevation above the life of the senses and a constant contemplation of the primeval Being, which results in the state of blessedness known as ecstasy.

This outline of the Neoplatonic system completes our survey of Greek theories of the ground of the world, the enduring elements of which we shall now proceed to distinguish.

Speaking of the origin of the universe, Herbert Spencer states that three suppositions are possible. We may assert that it is created by an external agency—the theistic view; that it is self-existent—the pantheistic view; or that it is self-created—the atheistic view. All these views are represented in the philosophy of the Greeks. The systems of Anaxagoras, Plato, and Aristotle are, to a greater or less extent, theistic; the views of Xenophanes, Heraclitus, the Stoics, and the Neoplatonists have pantheistic leanings; while the doctrines of the Epicureans and the Skeptics reveal an atheistic tendency.

Many of the characteristic attributes of the Deity, as represented by later philosophers, are developed in these early speculations. We find, on the one hand, conceptions of his infinity and eternity, of his goodness, intelligence, and power; on the other hand, the idea of God as an indefinable reality, devoid of all attributes, even of intelligence and will.

Just as the teleological view of the universe leads Anaxagoras to the idea of the cause of all as *νοῦς*, impels Plato to identify God with the Idea of the Good as the final cause of all becoming, and leads Aristotle to conceive of him as pure Form or Thought toward which all things, by their very nature, are compelled to strive, so Leibniz argues teleologically from the harmony subsisting among the non-interacting monads to God as the only possible source of such harmony. This difference, however, is to be noted—that whereas the God of Leibniz preimposes the ends upon the monads he creates, and preestablishes the harmony that exists among them, the God of Plato or of Aristotle is not a creator of the world in the

mechanical sense, but all nature strives of necessity toward the Idea of the Good or toward pure Form as its final goal. The teleological view of the universe is also a prominent element in the earlier philosophy of Kant, although in the *Critique of Pure Reason* he devotes a chapter to the exposition of the invalidity of the physico-theological proof, as he calls it, of the existence of God. He shows that "the physico-theological proof rests on the cosmological, and the cosmological on the ontological proof of the existence of one original Being as the Supreme Being; and as, besides these three, there is no other path open to *speculative reason*, the ontological proof, based exclusively on pure concepts of reason, is the only possible one, always supposing that any proof of a proposition, so far transcending the empirical use of the reason, is possible at all."¹ Kant, therefore, derives his proof of the existence of God entirely from the postulates of the practical reason.

The inconsistency in Plato's conception of the Idea of the Good, as both the highest in the series of ideas and the cause of all the others, is met again in Leibniz's view of God as the Monad of monads, the highest in the series and the source of all the lesser monads.

Many thoughts analogous to Greek conceptions are present in the system of Spinoza. The starting point of his philosophy is his conception of Substance as "that which exists in itself and is conceived by itself; that which does not need the conception of any other thing in order to be conceived."² This is essentially like the Cartesian definition of substance, but Spinoza draws from it the logical conclusion, which Descartes failed to derive, that finite things are not substances, and that the sole Substance is God. Spinoza's God is endowed with infinite attributes ("what the intellect perceives as constituting the essence of Substance"³); but of these only two, extension and consciousness, are manifested to us. Finite things are merely modes of God's attributes. God therefore exists in

¹ Kant, *Critique of Pure Reason*, p. 507.

² Spinoza, *Ethics*, Part I, Def. III.

³ *Ibid.*, Part I, Def. IV.

finite things as their essence, and they exist in him as modes. God and nature are, in brief, identical. As the universal essence of things God is *natura naturans*, but as the totality of his modes he is *natura naturata*. In this pantheistic view of the universe (to which Spinoza, like the Eleatics, is led by a desire to represent all reality as a unity) he agrees with Xenophanes, Heraclitus, and the Stoics. But the Stoic conception of God as a Providence or Reason, which creates the universe with a view to ends, Spinoza rejects. In this particular he is in agreement rather with the Epicureans, that it is absurd to speak of ends with relation to the Deity. Spinoza's disbelief in teleology is partly the result of his mathematical view of metaphysics, since mathematics knows no ends, but only grounds and consequences, and partly the outcome of his definition of Substance, which forbids it to be conditioned by any ends outside itself. We remember that this idea, that objective ends would be limitations of God's perfection, leads Aristotle to deny the creative activity of God, to declare that God's thought can be his only object, and that his relation to the world is that of a transcendent Being. Spinoza, however, tries to reconcile this view with the immanence of God. He succeeds only in evading the difficulty by his mathematical conception that the world follows from the nature of God with the same necessity as it follows from the nature of a triangle that the sum of its three angles is equal to two right angles. God is merely the logical ground from which existence follows as a necessary consequence. Spinoza's closest alliance, however, is with the Neoplatonists. Like them, he feels that the ascription of attributes to the Deity would destroy his unity and infinity since *omnis determinatio est negatio*. That Spinoza, notwithstanding this assertion, ascribes to God an infinite number of attributes is an inconsistency which some philosophers try to explain away by interpreting the attributes as merely human methods of conceiving God, not as expressions of his essential nature. But this would bring back the dualism of extension and consciousness, of the finite and the infinite, which Spinoza aimed to overcome, and would

leave no place in his system for the immanence of God. The truth is, that this doctrine of immanence is irreconcilable with that of indeterminateness, and leads of necessity to confusion of thought. Although Spinoza asserts that man has an adequate knowledge of God in the two attributes of extension and consciousness, it is difficult to conceive how this knowledge can be more adequate than that of Spencer's "Unknowable Reality," since Spinoza insists that God has neither intelligence nor will, in the human sense of the term, nor any other attribute. Spinoza's Infinite, like that of the Neoplatonists, becomes, through the denial of all qualities, a pure abstraction, a form without content, totally lacking in any moving principle from which the world can be derived. That this empty form is, nevertheless, for Spinoza an object of love, and that he holds man's highest happiness to consist in love of God, is another inconsistency which he shares with the Neoplatonists. Erdmann tries to explain it by translating love of God into love of truth, "since everything is known in its necessity only if it is known as a necessary consequence of the Infinite Divine Being. . . . God, then, does not love us, but we love him if we have knowledge."¹

Schelling bears the same relation to the Greeks as does Spinoza, in so far as in his pantheistic system of identity he adopts Spinoza's view that mind and nature have a common basis in the Absolute, which itself, however, is neither mind nor body, but an essence indeterminate in content, an indifference of object and subject, of the real and the ideal.

Both Platonic and Stoic elements may be detected in Hegel's view of the Absolute as the Idea, and of the content of the Absolute Idea as the whole system. His assertion that the infinite, if beyond the finite, must by this very limitation cease to be infinite reëchoes one of the Skeptical tropes; but Hegel solves the difficulty by declaring that "the infinite is the essence of the finite, and the finite is the manifestation of the infinite. Infinity determines itself, limits itself, sets

¹ Erdmann, *History of Philosophy*, vol. II, p. 86.

boundaries to itself; in a word, it becomes the finite by the very fact that it gives itself existence."¹

With few exceptions, the various systems of philosophy, ancient and modern, have shown a tendency to represent the ground of the world by the highest or most absolute principles that their theories afforded. Differences in conceptions of this ground are due to various motives which have played their part in the past, as they do in the present, in influencing the special determinations. Modern philosophy, taken as a whole, shows a disposition toward a keener analysis and toward a checking of extravagant fancies by a study of the limitations of human knowledge; but ever since the time of Kant there has also been manifest a tendency to grant to the practical reason a voice in the final decision. Whatever may be the outcome, it is reducible to one of the three general views of the ground of the universe expounded by the philosophers of Greece. Materialism and idealism, empiricism and rationalism alike have their theistic, their pantheistic, and their atheistic representatives, each of whom tries to bring to the support of his arguments for his conception of the World Ground the full weight of his particular system of philosophy.

¹ Weber, *History of Philosophy*, pp. 503, 504.

III

SPACE AND TIME

THE question of the nature of space and time constitutes for modern metaphysics a vital problem, affecting as it does our view of the reality of the external world. In attempting to institute comparisons on this subject between the old philosophy and the new, it may be well to state at the outset that any conscious expression of the subjectivity of space and time as expounded by Kant or developed by Lotze was foreign to Greek thought. The speculations of the Greeks were largely confined to debates concerning the finitude or infinity of space and time; and yet we shall see that they did not altogether ignore the problem of the metaphysical nature of these categories, nor were they wholly blind to the difficulties involved.

The first idea of space among the Physicists was that of a void, empty of matter. The confidence in such a principle as contrasted with the "full" (τὸ πλεόν) remained unshaken until the notion was challenged by the Eleatics.

The emphatic assertion of Parmenides that only being exists, and that non-being is inconceivable, coupled with his identification of non-being with the void, proves, in effect, a denial of the reality of space as by him conceived; but we must observe that it is the non-existence of empty space alone toward which the arguments of Parmenides are directed.

His disciple, Zeno, comes nearer the appreciation of the real problem, and wrestles with it in one of its modern aspects. "If there is such a thing as place," he says, "it will be in something, for all being is in something, and that which is in something is in some place. Then this place will be in a place, and so on indefinitely. Accordingly, there is no such thing as place."¹

¹ Fairbanks, *First Philosophers of Greece*, p. 116.

Space, according to Plato, is not a condition of reality, that is, of the idea, but is that in which all things appear, grow up, and decay. Plato represents time as a mere shadow or image of eternity. "The past and future are created species of time which we unconsciously, but wrongly transfer to the eternal essence. . . . When we say that what has become has become, and what is becoming is becoming, and that what will become will become, and that what is not is not, — all these are inaccurate modes of expression."¹ Time, therefore, and all things that appear in time are unreal. The unreality of time follows from the sole reality of the timeless idea.

Aristotle finds the solution of the problem presented by Zeno in a new conception of space as a state or property of things. "It is not difficult," he says, "to solve Zeno's problem that if space is anything it will be in some place, for nothing hinders the first place from being in something else, just as health exists in warm beings as a state, while warmth exists in matter as a property of it. So it is not necessary to assume an indefinite series of spaces."² Elsewhere Aristotle declares that "space is neither form nor matter nor limit, but the boundary of the containing body."³ Both space and time are infinite. Time is implicit in motion, but cannot in reality exist without a soul, since number does not exist without a calculator, and the sole calculator is reason. Apart from the soul, therefore, time cannot exist, but only that which constitutes the essence of time — the reality which lies beneath it as a substratum of its existence.

The Epicureans maintain that space exists from eternity, as a precondition of all motion, but that the sense of time comes from what is done in time. "Time exists not by itself, but simply from things which happen, the sense apprehends what has been done in time past as well as what is present and what is to follow after. No one feels time by itself abstracted from the motion and calm rest of things."⁴

¹ Plato, *Timaeus*, 38. ² Aristotle, *Physics*, Bk. IV, ch. V.

³ Aristotle, *Physics*, Bk. IV, ch. VI.

⁴ Lucretius, *De Rerum Natura*, Bk. I, 462.

When Berkeley defines space as the experience in unresisted organic movements, and time as the apprehension of changes in our ideas; when Leibniz asserts that space and time are not real substances nor attributes thereof, but orders of coexistences and succession of things and phenomena; when Kant, arguing for the transcendental ideality of space and time, insists that they are no more than the subjective conditions of our sensibility and intuition, space being the form of all the phenomena of the external senses and time the form of the internal sense; when Lotze represents space as the "intellectual" relations of things which we translate into spatial language, and regards time not only as a subjective form of apprehension, but also as an unaccountable constituent of the real, — although these modern philosophers differ in the kind of reality they accord to space and time, they agree among themselves, and with Zeno, Plato, Aristotle, and Lucretius, in just this point that they refuse to admit that space or time possesses any substantial reality.

Zeno's argument against the reality of space recurs in many of the modern expositions of the contradictions involved in the ordinary conceptions. "The common notion," says Bowne, "of an independent space is repugnant to creation, for the necessity would ever pursue us of positing a previous space for the reception of the created one."¹

Although it should not be too strongly urged, the parallelism might be drawn between Aristotle and Kant that just as the former in one sense asserts the reality of time, and yet denies that it can exist apart from the soul, so Kant emphasizes the thought that the transcendental ideality of space and time detracts in no measure from their empirical reality.

The conclusion to be drawn from this comparison of the conceptions of space and time as developed in ancient and modern philosophy is that the Greeks, though not themselves sufficiently sure-footed to venture on the path that lay before them, were able at least to point out the road along which modern speculation is traveling.

¹ Bowne, *Metaphysics*, p. 131.

IV

CONCEPTIONS OF EVOLUTION

To cover the many conflicting systems of philosophy that lay claim to the title of evolution, it is necessary to use the term in its broadest sense. Evolution thus broadly defined includes all theories of the universe that view it as the result of a gradual development of indeterminate, simple, lower forms into determinate, complex, higher forms, through the operation of causes immanent in the world. Thus considering evolution as a theory of development, it is the object of the present discussion to discover how far the modern evolutionary hypotheses were anticipated by the speculations of the Greeks.

The first step toward the conception of development was taken by the early physicists — Thales, Anaximander, and Anaximenes — in their effort to explain the world as generated out of a primordial substance. Anaximander's theory more specifically foreshadows later speculation in that it traces the origin of all determinate existence from an indeterminate infinite element, τὸ ἄπειρον. The first principle of Anaximander, like that of Thales and Anaximenes, is without beginning, and indestructible. Anaximander interests us also by his attempt to explain the origin of man. "Man," he tells us in one passage, "came into being from another animal, the fish;"¹ but elsewhere he says that "at the beginning man was generated from all sorts of animals, since all the rest can quickly get food for themselves, while man alone requires feeding for a long time."² Anaximander further declares that "destruction and far earlier generation have taken place since an indefinite time, as all things are involved in a cycle."³

¹ Fairbanks, *First Philosophers of Greece*, p. 13.

² *Ibid.*, p. 14.

³ *Ibid.*, p. 14.

Besides emphasizing the fixed law of change, Heraclitus reiterates Anaximander's assertion of a continuous alternation of generation and destruction. "Life and death, waking and sleeping, youth and old age, are the same; for the latter change and are the former, and the former change back to the latter."¹ In his doctrine of strife as the process of evolution, Heraclitus voices a still more pregnant thought. "Heraclitus blamed Homer for saying 'would that strife might perish from among gods and men. For then,' said he, 'all things would pass away.'"² "All things are made by strife" (πάντα κατ' ἐριν γίνεσθαι).³

Empedocles, as we have observed before, teaches that all things arise from the combination and separation of four primitive elements through the operation of the forces of love and hate. "There is no origination of anything that is mortal, nor yet any end in baneful death, but only mixture and separation. It is impossible that being should perish completely."⁴ This statement repeats Anaximander's idea of the indestructibility and eternity of being. In the beginning there existed a compact mass in which love reigned supreme; but by the development of the disruptive force — hate — the elements separated and individual things arose. Whenever the force of separation dominates, individual things disappear. Thus we have alternate periods of growth and decay. According to Empedocles, organisms arose from formless lumps of earth and water, which shaped themselves into animal or human organs and members. The heads which at first "grew up without necks," the arms which "wandered about naked, bereft of shoulders," and the eyes which "roamed about alone with no foreheads,"⁵ came together by chance, and those that were adapted for union shaped themselves into living organisms. A countless number of combinations perished, while only those persisted which were by nature capable of surviving and of propagating them-

¹ Bywater, *Heracliti Ephesii Reliquiae*, Frag. LXXVIII.

² Fairbanks, *First Philosophers of Greece*, p. 35.

³ Bywater, *Heracliti Ephesii Reliquiae*, Frag. XLVI.

⁴ Fairbanks, *First Philosophers of Greece*, p. 163.

⁵ *Ibid.*, p. 189.

selves. Plants arose first, then animals, the higher forms of life being compelled to pass through stages of the lower. "Before this," says Empedocles, "I was born once a boy and a maiden and a plant and a darting fish in the sea."¹

The only fruitful idea added by Anaxagoras to Empedocles' principles of development is the theory that the *homoiomeriai*, which were originally commingled in a chaotic mass, were, after separation by the *νοῦς*, remingled according to inner affinities.

The theory of Leucippus and Democritus, which explains all development as a combination of atoms through an inherent force acting by necessity according to a universal law, contains the fundamental principle of all mechanical systems of cosmic evolution.

The philosophy of Plato, which is concerned more with being than with becoming, leaves no legacy to the doctrine of evolution beyond the thought that the human race arose in the universe in ages infinitely remote. Influenced, no doubt, by his teleological view that all things have their purposes outside themselves in something better, Plato reverses the order of organic development in the assertion that the most perfect of animals — man — was first created, and that birds and beasts and fishes are transformations of light-minded or degenerate men.²

To Aristotle nature appears as a scale of progressive development toward perfection, from lifeless matter through the various stages of life up to man. He rejects the fortuitous combinations of Empedocles in favor of the teleological conception that nature produces first those organs that are necessary for the support of life.

The Stoics accept from Anaximander and Empedocles the idea of successive periods of development and destruction of the universe, while the Epicureans reiterate the notion of fortuitous beginnings. Lucretius, like Empedocles, speaks of the extinction of innumerable tribes unable to transmit life to

¹ Fairbanks, *First Philosophers of Greece*, p. 207.

² Plato, *Timaeus*, 42, 91, and 92.

their offspring. He further traces the evolution of man from an original state of beastlike savagery, the development of language from the sounds of animals, of music from the sounds in nature, and of religion from ideas presented in dreams and in hallucinations.

Affinities between many of these Greek conceptions and the evolutionary hypotheses of the present are no less remarkable than they are manifest.

Anaximander's theory of the generation of all determinate forms of existence from an indeterminate element foreshadows vaguely Spencer's idea of progress from "an indefinite, incoherent homogeneity to a definite, coherent heterogeneity." Further, Anaximander resembles Spencer in his theory of the alternation of development and destruction. "Apparently," says Spencer, "the universally coexistent forces of attraction and repulsion, which necessitate rhythm in all minor changes throughout the universe, also necessitate rhythm in the totality of its changes, produce now an immeasurable period during which the attractive forces predominating cause universal concentration, and then an immeasurable period during which the repulsive forces predominating cause universal diffusion — alternate eras of evolution and dissolution."¹

In the Heraclitean conception of strife as a condition of development we may see at least a suggestion of the principle of struggle for existence — a principle which Darwin has shown to be so significant a factor in biological evolution. Heraclitus' recognition of a fixed and universal law, according to which all change proceeds, also suggests a significant element of all the modern theories of evolution.

Empedocles' forces of love and hate are but other names for Herbert Spencer's forces of attraction and repulsion. In the light of this interpretation, it will be fruitful to compare the theory of Spencer, quoted above, with the assertion of Empedocles that when hate predominates individual things disappear. Empedocles also recognizes the principle of "survival of the fittest" amid the destruction of innumerable types,

¹ Spencer, *First Principles*, p. 537.

and of adaptation to environment as an important condition of fitness to survive.

The Anaxagorean principle of the mixture of the original elements according to inner affinities, is faintly suggestive of the Spencerian theory of "a gradually completed segregation of like units into a group distinctly separated from neighboring groups, which are severally made up of other kinds of units."¹

The atomistic system of Leucippus and Democritus contains, as we have already observed, the foundation principle of all the purely mechanical theories of evolution. Among their most enduring thoughts is the idea of the universal reign of law, which has been emphasized before in connection with the philosophy of Heraclitus.

Aristotle's view of nature as a scale of progressive development reminds us of Leibniz's theory, which regards the monads as arranged on a graduated scale of development toward perfection. But there is one great difference to be noted between these two philosophers. Aristotle's principle of development from potentiality to actuality involves the change of one thing into another, whereas in the system of Leibniz, although a process of evolution occurs within each monad, no monad ever develops into another.

The special contribution of Lucretius, which consists in his many-sided application of the doctrine of evolution to language, music, and religious ideas, as well as to nature and man, is a further approximation to the philosophy of Herbert Spencer.

Recapitulating the results of this comparison, we find represented in the philosophy of the Greeks the idea of a basal identity of all existence, of the indestructibility of matter, of a fixed law of change, of the gradual development of higher from lower forms, of the immeasurable antiquity of man, of the dependence of progress on a constant struggle for existence, adaptation to environment, and survival of the fittest.

Yet, in spite of their significance as anticipations, the

¹ Spencer, *First Principles*, p. 459.

Greek conceptions were but flashes of insight resting on an insecure foundation of experience, while modern evolutionary theories are rooted in science and owe the enthusiasm of their supporters to the remarkable results achieved in the field of science by the painstaking researches of such men as Darwin, Wallace, and Lamarck. When, however, overstepping the limits of science, these modern theories present themselves as complete systems of philosophy, competent to solve all the problems which properly belong within the sphere of metaphysics, it is necessary to emphasize the fact that evolution explains nothing beyond the process or order of development. All that evolution gives rise to must be potentially present in some germ or element, concerning the origin of which natural science is unable to enlighten us. The development of things in accordance with certain fixed laws throws no light either on ultimate origins or on the underlying causality which determines the law of evolution itself. Greek philosophy shows us evolutionary conceptions in the state that Spencer characterizes as un-unified knowledge; modern investigations have advanced them to the partially unified knowledge of science; but not yet has any system of evolution formulated such universal propositions as Spencer demands for the completely unified knowledge of philosophy.

V

CONCEPTIONS OF CAUSALITY

ARISTOTLE arraigned all his predecessors with the charge of having imperfectly conceived the problem of causality. That such inadequate conceptions should occur in the early history of philosophy is by no means surprising. Rather would it have been cause for wonder had this subtle category been exhaustively interpreted in the infancy of speculative science.

The question of change presents itself to the Ionians as a problem requiring solution, but when they have reduced all generation to its lowest terms, in a primary substance, the problem seems to them completely solved. By regarding the principle of life and motion as inherent in their fundamental element, they stifle inquiry as to any cause of change or motion. Their investigations are therefore directed solely toward the discovery of a material cause.

Of the four causes enumerated by Aristotle as active in all phenomena, — the material cause, the formal cause, the efficient cause, and the final cause, — the second is for the first time recognized by the Pythagoreans in their view of number as the formal cause of things.

Since it is experience of change that first impresses on the mind the causal relation, the Eleatics, who regard change as mere illusion, manifest, as might be expected, little interest in the question of causality.

The efficient cause, or cause of motion, is introduced for the first time by Heraclitus, although Empedocles usually receives the credit of having originated this conception. The mobility of Heraclitus' primitive fire is indeed suggestive of hylozoism; but if we are to find any intelligible meaning in

the famous sayings of Heraclitus — “All things arise and pass away through strife,”¹ “War is the father of all,”² we must admit that he recognizes struggle, or the war of opposites, as the efficient cause of generation. Heraclitus, also, for the first time gives utterance to the thought that all change is subject to a fixed, unalterable law.

Empedocles, although not the originator of the idea of an efficient cause, deserves the credit of giving to the thought a more emphatic recognition in the development of his system. In addition to the four elements, — earth, water, air, and fire, — assumed as the material principles of things, he posits further as efficient causes a combining force — love — and a separating force — hate. The combinations and separations of the elements effectuated through the action of these two forces account for all the variety in experience.

A further advance on previous conceptions is made by Anaxagoras in his reflection that *νοῦς*, or Mind, is the world-ordering cause, both the source of motion, and the final end of all becoming. By this conception Anaxagoras introduces the final cause, the last of the four enumerated by Aristotle. But both Plato and Aristotle justly reproach him for having discovered this fruitful principle without being able to apply it. “I rejoiced,” says Plato, “to think that I had found in Anaxagoras a teacher of the causes of things such as I desired. How grievously was I disappointed! As I proceeded, I found my philosopher altogether forsaking mind or any other principle of order, but having recourse to air and ether and water and other eccentricities.”³ And Aristotle tells us that “Anaxagoras employs mind as a machine for the production of the orderly system of the world; and when he finds himself in perplexity as to the cause why a thing necessarily is, he then drags it in by force to his assistance; but, in the other instances, he assigns, as a cause of the things that are being produced, everything else in preference to mind.”⁴

¹ Bywater, *Heracliti Ephesii Reliquiae*, Frag. XLVI.

² *Ibid.*, Frag. XLIV.

³ Plato, *Phaedo*, 97.

⁴ Aristotle, *Metaphysics*, Bk. I, ch. IV, § 4.

Protagoras, who regards sensation as the source of all knowledge, finding that causes and ultimate principles are not discoverable through sense perception, concludes that they are inaccessible to knowledge.

Democritus does not ask for a cause of the atoms themselves, since believing them eternal he regards them as uncaused; but the coming together of the atoms in space, which gives rise to the universe and all existence, he attributes to mechanical necessity. The elements of Empedocles are brought together by the external force of love, those of Anaxagoras are guided by a designing mind; but the atoms of Democritus, constrained only by an innate necessity, range themselves together in space under the principle of similarity in form and magnitude. Democritus, however, protests against chance as vehemently as he does against design. Although all things, including the human mind, are produced by the pressure and impact of atoms, they proceed according to law and are bound together in an eternally necessary chain of cause and effect.

In Plato's teleological view of nature the ideas are regarded as the final causes of phenomena, the idea of the good — the highest of all — being at the same time the ultimate efficient cause and the final cause of all becoming. In addition to the ideas, however, there are secondary or "coöperative causes which God uses as his ministers, when executing the idea of the best, as far as possible. They are thought by most men not to be the second, but the prime causes of all things, which they cool and heat and contract and dilate, and the like; but this is not true, for they are incapable of reason or intellect. The only being which can properly have mind is the soul, and this is invisible; whereas fire and water and earth and air are all of them visible bodies. Both kinds of causes should be considered of us, but a separation should be made of those which are endowed with mind and are the workings of things fair and good, and those which are deprived of intelligence and accomplish their several works by chance and without order."¹

¹ Plato, *Timaeus*, 46.

Aristotle, like Plato, regards nature as an adaptation of means to ends, but he gives more prominence than Plato to mechanical conditions as intermediate efficient causes. He combines, in a measure, the teleological and mechanical views of becoming. Aristotle conceives the process of development both from the standpoint of man's constructive activity, or the world of art, and from the standpoint of the organic world. In the world of art he distinguishes four causes as contributing to the production of any object: first, a material cause (*ἡ ὕλη*), second, a formal cause (*τὸ εἶδος*), third, an efficient, or moving cause (*τὸ κινητικόν*), and fourth, a final cause (*τὸ τέλος*). Thus in the case of the production of a statue, the marble constitutes the material cause; the idea, or plan of the statue in the mind of the artist, the formal cause; arms, hands, tools, etc., the efficient, or moving cause; and the motive that actuates the artist, the final cause. The change effected by the coöperation of these four causes is a transition from matter, the statue in potentiality, to the actual formed statue. In the case of organic creation, however, these four causes are reducible to two, matter and form, since the final and efficient causes are here identical with the formal cause. The form arouses matter to move toward it as an end. All organisms display an immanent, although unconscious purpose to develop into their proper form. The universe is viewed by Aristotle as an organic whole, moving from the lowest stage, matter, or mere potentiality, to its end, the highest form, pure actuality, or God. Yet, in spite of his teleological view of nature, Aristotle recognizes in the world of experience an accidental element, which cannot be assigned to purpose or reduced to law. This he attributes to the mechanical causes which inhere in matter and oppose a certain resistance to form.

The Stoics regard the universe as a living, connected whole, and its manifold phenomena as particular forms of a unitary being. For Aristotle's formal and material causes they substitute a passive principle, unqualified substance, and an active principle, the reason immanent in matter. But this active principle, reason, which is the moving force of the world, is

in itself material. Although it is identical with the soul of the world, or God, it permeates all things as a material fire or breath (*πνεῦμα*). This contradictory conception is due to two irreconcilable elements which enter into Stoic speculation. The Stoics adopt, on the one hand, the material view of the universe, which recognizes substantial matter as the sole reality; but, on the other hand, they perceive in nature an adaptation of means to ends, which they can ascribe only to a reasonable creator. God is therefore represented as a purposefully guiding Providence, but he is at the same time identified with Necessity or Destiny. The Stoics believe with Democritus that necessity governs all occurrence, that chance is an impossibility, and that all things are subject to a universal law.

The Epicurean interest in the question of causality proceeds from the thought that the discovery of natural causes, by removing superstitious fears, will add to tranquillity and happiness. As the materialistic theory of Democritus seems best to satisfy their demand, they adopt it with a significant modification. While they agree in general with Democritus in his theory of mechanical causation, they allow, at least in the beginning, a voluntary deviation of the atoms from their direct course, which admits, in the coming together of the atoms, an element of indeterminism, or chance. In the development of their theory, also, they find no occasion to lay stress upon the idea of the reign of law, which forms so prominent an element in the systems of Heraclitus, Democritus, and the Stoics. They deny, even more emphatically than did Democritus, the validity of the teleological interpretation of nature. "Nothing," says Lucretius, "was born in the body that we might use it, but that which is born begets for itself a use."¹

In conformity with their general attitude toward knowledge, the Skeptics doubt the possibility of knowing the ultimate causes of things. In order to justify their attitude of suspense of judgment, which seems to them a necessary condition of tranquillity, they submit the notion of aetiology to a

¹ Lucretius, *De Rerum Natura*, Bk. IV, 834.

searching criticism, in the course of which they anticipate many modern objections. In eight tropes Aenesidemus attempts to prove that all aetiology is futile. He calls attention to the fact that aetiology, which treats of unseen things, can give no trustworthy evidence regarding phenomena, nor can phenomena tell us anything of these unseen things, which may act according to a law peculiar to themselves; that all investigation regarding the causes of things is one-sided, since from many possible theories each philosopher chooses the one most consistent with his own hypothesis concerning the elements of things, disregarding the equally plausible views of his opponents; that the philosophers often assign causes devoid of order for things which happen in an orderly way, or give reasons for things which conflict directly with experience; and that they attempt to explain occurrences by causes which are quite as inscrutable as are the events themselves.¹ These tropes are intended to establish the fact that a cause in harmony with all the systems of philosophy, including skepticism, is not possible, since phenomena can give no clew to the unknown. Aenesidemus further submits to criticism the concept of causal interaction. He attempts to show that the transfer of motion from one thing to another is equally unintelligible whether we regard the efficient cause as material or immaterial. Since the effect must coincide in nature with the cause, the immaterial cannot produce the material, nor the latter the former. Contact, usually assumed as a necessary condition of interaction, simply introduces a new term without escaping the difficulty. The time relation of the cause to the effect is also difficult to determine. If the cause is synchronous with the effect, cause and effect merge into one and become indistinguishable. If the cause precedes the effect, it is impossible to determine a moment of time in which the cause passes over into its effect. So long as the cause is active the effect is absent, and as soon as the effect is present the cause has ceased to act. To conceive of the cause as following the effect — the only remaining alternative — would be absurd. The Skeptics

¹ Sextus Empiricus, *Pyrrhonic Sketches*, Bk. I, ch. XVII.

also emphasize the important thought of the relativity of cause and effect. A cause is a cause, they say, not *per se*, but only in relation to its effect; and an effect likewise is not an effect in itself, but only in reference to its cause.

The Skeptical refutation of aetiology is the last Greek contribution to the subject of causality. We are now prepared to ask the question, how far, in the field of this special inquiry, the Greeks anticipated modern thought.

Crude as were the theories of material causation to which the Iónians confined themselves, they none the less contained in germ the principle of the modern materialistic schools that matter in motion is the sole cause of all phenomena, both physical and psychical. But of all the materialistic conceptions of causality presented by the Greeks, the mechanical theory propounded by Democritus has held the most enduring place in philosophic thought. In the reawakening of the scientific movement, the mechanical view of the world is first represented by Galileo and Hobbes, but is reaffirmed by Descartes, who, although he places the ultimate causality in God, attempts a comprehensive mechanical explanation of nature. The rejection by Democritus and the Epicureans of final ends, in the interest of maintaining a purely natural theory of causation, is indorsed by most of the mechanical theories. Bacon considers teleology as one of the dangerous "idols of the tribe," or illusions common to human nature in general. Descartes emphatically refuses to admit final causes as explanations of nature, declaring it presumptuous to seek to comprehend the purposes of God in creation. Spinoza, whose notion of causation is that of a logical, or mathematical, ground and consequence, declares, with even greater vehemence, that it is absurd to speak of purposes with relation to the Deity, that all teleology is a gross species of anthropomorphism. This anti-teleological tendency of viewing creation recurs in the purely mechanical evolutionary systems of the present day, including that of Herbert Spencer. These systems do not deny purposive adaptations in nature, but explain them as the result of purely natural causes. Animals do not have fur in order to protect

them from the cold, but because they have fur they are able to survive in spite of cold. Or, in the words of Lucretius, quoted before, "Nothing was born in the body that we might use it, but that which is born begets for itself a use."¹ The Positivists, also, who limit all knowledge to the sphere of phenomena, regard the conception of first causes or final ends as utterly absurd. Common to most of these thinkers, also, is the Heraclitic, Atomistic, and Stoic insistence on the universal reign of law, on the subjection of all phenomena in the physical and mental realms to an unbroken chain of causes and effects. Yet Spencer and other English Positivists acknowledge that even determinism cannot be deduced as an absolute certainty from our limited experience. It is conceivable that the law we regard as uniform is not in reality universal. The relative alone is accessible to us; we can never reach the absolute.

The teleological view of causation, on the other hand, which was first enunciated by Anaxagoras, but more consistently developed by Plato and Aristotle, is emphasized by Leibniz. He, however, denies the influence of the monads on one another and confines all change to the inner development of the monads, while our apparent experience of the interaction of objects is, as has been observed in another connection, due to a preëstablished harmony grounded in God. Leibniz regards the world as a mechanism constructed to further the purposes of God. Thus he combines, as Aristotle in a different way attempted to do before him, the mechanical and teleological views of the universe. Kant, also, in the *Critique of the Teleological Judgment*, although he adopts the mechanical theory of nature, and insists that final ends are not satisfactory explanations of phenomena, yet leaves a place for teleology in experiences like that of life, which, while they are from their very nature permanently unintelligible on any mechanical theory, force upon us the impression of purposiveness. Teleology becomes an essential principle, also, in the German idealistic school, whose chief representatives are

¹ Lucretius, *De Rerum Natura*, Bk. IV, 831.

Fichte, Schelling, and Hegel. "The spread of the mechanical way of regarding the world," says Windelband, "was met by the German philosophy with the fundamental thought that all that is known in this way is but the phenomenal form and vehicle of a purposefully developing inner world, and that the true comprehension of the particular has to determine the significance that belongs to it in a purposeful connected whole of life."¹

In Aristotle's insistence on a multitude of causes, limited though they be in number, lies a suggestion of the modern notion that not one cause (or condition, as we should call it), but many, contribute to the reality of any individual existence. It is the principle that gives rise to the conception of a totality of causes as developed by Hegel, Lotze, Bowne, or Bradley.

From the Skeptical criticisms, which received their primary inspiration from Protagoras, the outcome has been very fruitful for modern speculation. Although, as we have observed, Aenesidemus is inspired by a practical aim, while Hume simply draws the logical conclusions from his sensationalistic theory of knowledge, yet the Skeptic anticipates most of Hume's keen polemic against the concept of causality. It never occurred to Aenesidemus, however, to criticise the doctrine from the standpoint of its origin; and the theory that the belief in causality is a fiction arising from the habitual association of frequently conjoined ideas, originated with Hume. But the conclusion that the idea of causality admits of application only in the field of phenomena is derived by Hume, as well as by the Skeptics. When Hume tells us that so long as we lack knowledge of that power in the cause by which it is enabled to produce its effect, we have no adequate knowledge of causality, it is but another expression for the skeptical proposition that phenomena fail to reveal the unknown. It is Hume's special development of the Skeptical conclusions, together with the consideration that no experience can supply the element of necessary connection, that leads Kant to the conviction that the conception of causality, so far

¹ Windelband, *History of Philosophy*, p. 624.

from being derived from experience, is a necessary condition of all experience.

The Skeptical conception of the relativity of the causal relation is reemphasized by Hegel. "So far as we can speak of a definite content," he says, "there is no content in the effect that is not in the cause. . . . It is in the effect that a cause first becomes actual and a cause. . . . The rain (the cause) and the wet (the effect) are the selfsame existing water. In point of form the cause (rain) is dissipated or lost in the effect (wet), but in that case the result can no longer be described as effect; for without the cause it is nothing, and we should have only the unrelated wet left."¹

Finally, all the Skeptical criticisms reappear in Lotze's critique of the common notions of causality, where the conclusion is drawn that the connection between cause and effect must be more than the conditioning of one by the other — that voluntary activity is the sole causality.

Modern investigations regarding the origin and validity of the concept of causality have led us to a fuller realization of the nature of the problem, a clearer formulation of its conditions, and a deeper insight into the difficulties surrounding its solution. Indeed, the problem as now apprehended, is scarcely recognizable as that over which the Greeks were struggling more than two thousand years ago; and yet the speculations of these early philosophers, despite the incompleteness of their conceptions and the one-sidedness of their development, have proved for all succeeding ages an invaluable heritage.

¹ Wallace, *The Logic of Hegel*, p. 277.

VI

THE RELATION OF THOUGHT TO ITS OBJECT

WHILE any conscious epistemology, or definite shaping of a theory of knowledge, is foreign to early speculation, the search for an ultimate essence, an abiding element, a hidden cause, is in itself a tacit acknowledgment that absolute reality is not given in experience, but must be apprehended through reflection. Thus there arises very early in Greek philosophy the epistemological motif. Though not definitely expressed, there is implicit in the beginning of speculation, the question how knowledge can be valid for an extramental reality — how thought, a mere mental event, can represent a truth independent of and beyond itself.

Heraclitus, first among the philosophers of Greece, emphasizes the idea that the senses are delusive and that truth is to be grasped through thought alone. "Eyes and ears," he says, "are bad witnesses to men having rude souls.¹ . . . The majority of people have no understanding of the things which they daily meet.² . . . Notwithstanding that all things happen according to reason, men act as though they never had any experience in regard to it.³ . . . They do not understand how that which separates unites with itself. It is a unity of oppositions.⁴ . . . Unite whole and part, agreement and disagreement, accordant and discordant, from all comes one, and from one all.⁵ . . . The law of understanding is common to all."⁶ These brief fragments reveal, in addition to the rationalism of Heraclitus, other principles

¹ Bywater, *Heracliti Ephesii Reliquiae*, Frag. IV.

² *Ibid.*, Frag. V.

³ *Ibid.*, Frag. II.

⁴ *Ibid.*, Frag. XLV.

⁵ *Ibid.*, Frag. LIX.

⁶ *Ibid.*, Frag. XCI.

of great historic significance. Here we find the recognition of a universal element in the human understanding, and the assertion of the unity of opposites, a statement which in recent times has given rise to so much discussion regarding the true import of the theory of Heraclitus and his true rank in the history of philosophy.

The central principle of the philosophy of Parmenides is, as we have seen, the idea that the sole reality is a unitary, unalterable being, and that all change and multiplicity are mere illusions. But since knowledge of this true being is attainable only by thought, and the senses delude us into an opinion of plurality, Parmenides, who in general stands opposed to Heraclitus, agrees with him in the opinion that the senses lead us astray, and that thought alone is capable of conducting us to the truth. Furthermore, since all that exists is one and homogeneous, if any reality is to be ascribed to thought, it must of necessity be identified with being. "Thinking and that by reason of which thought exists," says Parmenides, "are one thing;"¹ or still more emphatically, "Thinking and being are one thing."¹

Zeno, the disciple of Parmenides, is the author of many famous arguments against the veracity of knowledge relying on sensation. He recognizes as valid the principle that nothing can be real of which the same predicate must be both affirmed and denied. Thus he applies, although he does not distinctly formulate, the principle of contradiction.

Since, in the systems of Empedocles and Anaxagoras, the basal elements of things are not cognizable through sense perception, but are discoverable only through a process of reasoning, these philosophers are ready to join the ranks of those who give no credence to perception, and insist that the path of reflection is the only road to truth. Empedocles gives expression to a primitive psychology in his statement that things are known to us by elements of like kind in ourselves. Further, he asserts that "all things have understanding and

¹ Journal of Speculative Philosophy, vol. IV, 1, *Parmenides on Nature*, pp. 6, 7.

the power of thought" (πάντα γὰρ ἴσθι φρόνησιν ἔχειν καὶ νόματος αἰσάν).¹

With Protagoras the relativity implicit in the Heraclitean flux receives a definite expression. Abandoning all distinction between perception and thought, he occupies a purely sensationalistic standpoint. For him there is no truth save that which is experienced. If, therefore, the sensations fail to give us absolute truth, such truth is unattainable. But he finds it easy to show that things are as they appear only for an instant of perception, and that they thus exist only in the mind of the perceiving subject, whence he concludes that man is the measure of all things and that no universally valid truth exists. Since that which appears true to each man *is* true for him, perceptions, as such, are all true, but they convey no knowledge of the object which gives rise to them. By observations such as these, Protagoras becomes the founder of the theory of the subjectivity of sense perception. He, for the first time, makes a conscious opposition of subject and object, and realizes that the subject must be at least a factor in the creation of phenomena. Perception, though distinguished from both subject and object, is, in the Protagorean theory, conditioned by both.

From the hypothesis that virtue is dependent on knowledge, Socrates concludes that knowledge must be attainable, and therefore seeks for a principle of universal validity to transcend the Protagorean relativism. This principle he finds in the general notion, the concept, which contains the element common to the thought of many individuals.

Democritus transcends the relativism of Protagoras, not by refuting the subjectivity of sense perception, but by refusing to acknowledge sensation as the only source of knowledge. Sensation gives us phenomenal reality, but reflection is necessary for the apprehension of the true constitutions of things, the atoms. Democritus, for the first time, makes the distinction between what Locke calls primary and secondary qualities — primary qualities being those that follow from the combina-

¹ Mullach, *Fragmenta Philosophorum Graecorum*, vol. I, p. 9.

tions of the atoms without dependence on the perceiving subject (form, size, hardness, etc.); secondary qualities those which have no relation to the nature of things, but are dependent on *our perception* of the combination of the atoms (such as color, taste, sound, etc.). Democritus regards perception, which is directed to the secondary qualities, as obscure, in contrast to reflection, which gives a clear insight into the essential qualities of things.

The starting point of Plato is the Socratic principle that knowledge is necessary for virtue; but as the knowledge which virtue demands cannot consist in the changeable product of sensation, he agrees with his master that general conceptions alone constitute true knowledge. "Knowledge does not consist in impressions of sense, but in reasoning about them; in that only, truth and being can be attained."¹ But if conceptual thinking gives true knowledge, while perception yields simply opinions, the content of such thought, the ideas, must have a permanent reality or being to distinguish it from the transitory phenomena of perception. "We participate in generation with the body and by perception; but we participate with the soul by thought in true essence, which is always the same and immutable."² Thus arose the Platonic conception of ideas as ontological realities, no longer mere products of the human mind, but the eternal prototypes, of which all things are copies. Plato assumes a definite relation of ideas to one another in a graded series ending with the idea of the good; and he regards it as the business of philosophy, or dialectic, to discover and systemically set forth this relation. In the *Meno* and *Phaedo* he develops the doctrine of reminiscence by which the ideas, conceived as metaphysical entities, are most closely connected with his theory of knowledge. "Before we began to see or hear or to perceive in any way, we must have had a knowledge of absolute equality or we could not have referred to that the equals which are derived from the senses, and so of all the other ideas; but if the knowledge which we acquired before birth was lost by us at birth, and

¹ Plato, *Theaetetus*, 186.

² Plato, *Sophist*, 248.

if afterwards, by the use of the senses, we recovered that which we previously knew, this would be recollection. . . . Learning is recollection only.¹ . . . The truth of all things always existed in the soul."² Plato distinguishes opinion as a stage intermediate between knowledge and ignorance. "What essence is to generation, that truth is to belief."³ . . . Those who see the many beautiful, and who yet neither see nor can be taught absolute beauty, who see the many just and not absolute justice and the like — such persons may be said to have opinion, but not knowledge; but those who see the absolute and eternal and immutable may be said to know."⁴ In the *Charmides* Plato questions the possibility of a science of knowledge. "Wisdom alone," says Charmides, "is a science of other sciences and of itself."⁵ But Socrates, not content with this statement, proceeds to discuss it without, however, arriving at any definite conclusion. In the same dialogue Plato raises the question as to whether the knowledge of what we know is the same as the knowledge of what we do not know, whether "the science of science will not also be the science of the absence of science."⁵ He also makes the important distinction between *what* one knows, ἃ οἶδεν, and *that* one knows, ὅτι οἶδεν. "If a man knows only, and has only knowledge of knowledge and no further knowledge, the probability is that he will only know *that* he knows something, but how will this knowledge or science teach him to know *what* he knows?"⁶

While Aristotle agrees with Plato that the universal is the proper object of knowledge and has a higher reality than the particular, he insists that the universal exists only in, and can be known only through, the particular; that essences and phenomena are inseparable. Although, therefore, the universal is first in value, the particular is, in time, the first step to knowledge. Induction must precede deduction. "The prior and more cognizable for us is what is nearer to sensation, but the absolutely prior and more cognizable is what is more

¹ Plato, *Phaedo*, 75, 76.

² *Meno*, 86.

³ *Timaeus*, 29.

⁴ *Republic*, 479.

⁵ *Charmides*, 166.

⁶ *Ibid.*, 170.

remote therefrom" (*πρὸς ἡμᾶς μὲν πρότερα καὶ γνωριμώτερα τὰ ἐγγύτερον τῆς αἰσθήσεως, ἀπλῶς δὲ πρότερα καὶ γνωριμώτερα τὰ πορρωτέρων*).¹ Aristotle, therefore, gives to sensation a very prominent place in his theory of knowledge. He regards sensuous perception as the result of qualities which exist potentially in the thing and actually in the perceiving subject. To the process of demonstrative knowledge he recognizes two impassable limits; on the one hand, the individual, the object of sense perception, which, as being contingent, can never be demonstrated; and, on the other hand, the most general principles or axioms, which must be apodictic, since all demonstration presupposes something more universal than that which is to be deduced. These ultimate principles are not derived from experience, but are innate in the soul. One of the most incontestable truths is the principle of contradiction. "It is impossible for the same thing to be and not to be at the same time."² Truth, according to Aristotle, consists in the agreement of thought with reality. "For indeed the assertion that entity does not exist and that non-entity does is falsehood, but that entity exists and that non-entity does not exist is truth."³ Truth and error are found only in the judgment and in the imagination; perceptions, as such, never lead us astray. Reason is in part active and in part passive. In his table of ten categories, Aristotle makes the first attempt to classify the highest concepts of the understanding.

In the doctrine of the Stoics the only sources of knowledge are perceptions, and the conclusions based thereon; and the sole activity of the mind is directed toward converting into knowledge such material as the mind receives through the senses. The Stoics picture the soul at birth as an empty tablet (*tabula rasa*), upon which, in the course of time, the sensations register their impressions as a seal leaves its mark upon a piece of wax. They deny emphatically that any ideas are innate in the soul. The most significant feature of the Stoic theory of knowledge is the search for a criterion of truth.

¹ Aristotle, *Posterior Analytics*, I, 2 (p. 184 of *Organon*).

² *Metaphysics*, Bk. II, ch. II, § 3.

³ *Ibid.*, Bk. III, ch. VIII, § 1.

This standard is found in the power of compelling belief inherent in certain perceptions. "By itself a perception does not necessarily carry conviction or assent, for there can be no assent until the faculty of judgment is directed toward the perception, either for the purpose of allowing or rejecting it — truth and error residing in judgment. Assent, therefore, generally speaking, rests with us. Some of our perceptions are, however, of such a kind that they at once oblige us to bestow on them assent, compelling us not only to regard them as probable, but also as true and conformable to the actual nature of things. Such perceptions produce in us that strength of conviction which the Stoics call a conception; they are therefore termed conceptional perceptions. Whenever a perception forces itself upon us in this irresistible form, we are no longer dealing with a fiction of the imagination, but with something real; but whenever the strength of conviction is wanting, we cannot be sure of the truth of our perception. Or, expressing the same idea in the language of Stoicism, conceptional or irresistible perceptions are the standard of truth."¹

The Epicureans adopt even more unreservedly than the Stoics the sensationalistic theory of knowledge. Their theoretical criterion of truth is sensation, but their practical test is the feeling of pleasure or pain. Since sensation is the only source of knowledge, all perceptions must be true, for how could reason, which is dependent on sensation, refute the testimony of the senses? Error belongs not to sensation, but to the judgment which draws unwarranted inferences from the sensations caused by "pictures" of the object.

The Skeptics doubt the possibility of any knowledge, whether derived from sensation or reflection. The aim of Skepticism is to secure first *ἐποχή*, or suspense of judgment, and later *ἀταραξία*, or imperturbability of spirit. The method is to oppose every argument adduced in rival theories by one of equal weight. It is the Skeptic's boast that he neither affirms nor denies, but maintains the attitude of ever seeking enlightenment. His sole criterion is the phenomenon, which cannot

¹ Zeller, *Stoics, Epicureans, and Sceptics*, pp. 88, 89.

be doubted, since it is based upon involuntary feeling. The question in dispute is not whether an object appears as it appears, but whether in reality it is as it appears to us. The Skeptical tropes attempt to prove that phenomena are so relative and changing that no certain knowledge can be based on them. The most important of these tropes are those on aetiology, which have already been discussed, and the ten tropes on the relativity of sense perception. The latter call attention to the differences in the constitutions of the various animals, which prevent them from gaining the same ideas of objects through the senses; to diversities even among men; to differences in the sense organs which cause the eye to assign to paintings elevations and depressions which to the touch appear as flat; to the varying effect on sense impressions of diverse physiological conditions as of satiety and sobriety; to the differences in the appearance of objects caused by quantity and physical state, by distance and position, and by the medium through which the object is viewed; to the relativity of everything to other things and to the person judging; and to the variability in different countries of customs, laws, and religious and philosophical beliefs.¹ From these tropes the Skeptics conclude that things in themselves cannot be known and that the only true philosophic attitude is that of doubt or suspense of judgment.

This review shows that in the epistemology of the Greeks some of the significant tendencies of modern theories of knowledge had already come to light. The rationalism of Heraclitus, Parmenides, Empedocles, Anaxagoras, Plato, and Democritus, anticipates that of Descartes, Spinoza, Leibniz, or Wolff; the sensationalism of Protagoras, the Stoics, and the Epicureans, is reproduced by that of Hobbes, Locke, Berkeley, Hume, Mill, and the Positivists; while the skepticism of the Sophists and the Skeptics has certain affinities with that of Hume.

To consider, in greater detail, the anticipations in the field of epistemology, let us turn first to Heraclitus. In his recognition of universality as a test of validity, he particularly

¹ Sextus Empiricus, *Pyrrhonic Sketches*, Bk. I, ch. XIV.

foreshadows Kant, as also in his conception of a unity which includes the manifold in itself. But it is in relation to the philosophy of Hegel that the utterances of Heraclitus assume the greatest significance. "Bei Heraklit," says Hegel, "ist also zuerst die philosophische Idee in ihrer speculativen Form anzutreffen. . . . Hier sehen wir Land. Es ist kein Satz des Heraklit den ich nicht in meine Logik aufgenommen;"¹ and Lasalle, further emphasizing the same view, says: "Heraclit dagegen hat das Werden seinem Wahrhaften Begriffe nach gehabt, als die Einheit des absoluten Gegensatzes von Sein und Nichtsein und deren Uebergang in einander. Er hat die Bewegung als reine Negativität gefasst."² Dr. G. T. Patrick, in his comments on Hegel's interpretation of Heraclitus, suggests that the latter's idea of the unity of opposites applies only to physical change, that the significant expressions: "We are and we are not,"³ "That which separates unites with itself; it is a unity of oppositions,"⁴ evidence no more than a recognition on the part of Heraclitus of the obvious fact that different properties inhere in the same thing. Perhaps the truth lies somewhere between the extreme views of Hegel and of Patrick; but whatever interpretation we may put upon the obscure utterances of Heraclitus, we cannot deny that there were implicit in his system, though not consciously present to his own mind, some of the principles of the Hegelian philosophy. "The unlike is joined together," says Heraclitus, "and from differences results the most beautiful harmony."⁵ . . . Unite whole and part, agreement and disagreement, from all comes one, and from one all."⁶ "There is absolutely nothing," says Hegel, "in which we cannot and must not point to contradictions or opposite attributes;"⁷ and he lays great stress, also, upon the thought that "each conception with which the human mind has thought reality becomes a moment or factor,

¹ Hegel, *Vorlesungen über die Geschichte der Philosophie*, vol. I, p. 328.

² La Salle, *Die Philosophie Herakleitos des Dunklen von Ephesos*, vol. I, p. 7.

³ Bywater, *Heracliti Ephesii Reliquiae*, Frag. LXXXI.

⁴ *Ibid.*, Frag. XLV.

⁵ *Ibid.*, Frag. XLVI.

⁶ *Ibid.*, Frag. LIX.

⁷ Wallace, *The Logic of Hegel*, p. 169.

which receives its full value only when introduced into the whole.”¹ “All things take place by strife,”² says Heraclitus. “Contradiction,” says Hegel, “is the very moving principle of the world.”³

In the epistemology of Parmenides the most noteworthy feature is the identification of thought and being. Here, again, we have a fruitful principle imperfectly conceived. To identify the theory of Parmenides with modern idealism, as represented by Berkeley, Fichte, or Hegel, would be fallacious, since the Parmenidean philosophy lacks the element of spirituality. Paradoxical as it may sound, the identification of thought and being, as set forth by the Eleatic, may be described as materialistic idealism. Thought and being are one, not because matter is reduced to a phase of thought, but because thought is conceived as analogous to matter. Nevertheless, the motive to this identification—the impulse to represent existence as an all-embracing unity, and yet concede reality to thought—governs all the later systems of idealism.

Zeno’s application of the principle of contradiction, which takes more definite shape in Aristotle, meets us again in Leibniz, who makes the absence of contradiction a fundamental condition of validity and a test of the principle of sufficient reason.

Empedocles’ opinion that all things have the power of thought also foreshadows Leibniz, who regards all the monads as souls having perception (*petites perceptions*), although he maintains that apperceptive self-consciousness belongs only to the higher monads.

Through his theory of the subjectivity of sense perception, Protagoras becomes the legitimate forerunner of Berkeley, Hume, and all the subjective idealists whose epistemology rests upon a sensationalistic basis.

Democritus, by his doctrine, derived from Protagoras, that sense qualities, such as colors, sounds, etc., are entirely

¹ Windelband, *History of Philosophy*, p. 612.

² Bywater, *Heracliti Ephesii Reliquiae*, Frag. XLVI.

³ Wallace, *The Logic of Hegel*, p. 223.

subjective and, by his consequent limitation of things to quantitative determinations, reminds us of Galileo, Hobbes, and Descartes, and still more forcibly of Locke, to whom (because he first applied the terms primary and secondary qualities to represent the distinction) the origination of this doctrine is often erroneously attributed.

At first thought the Platonic philosophy, which regards ideas as the sole reality, suggests comparison with Berkeley, Fichte, and Hegel; but here again, as in the case of Parmenides, we must beware of rash conclusions. The Platonic idealism is mainly a system of metaphysics, and only in so far as it is connected with the doctrine of reminiscence has it any significance for the theory of knowledge. The ideas, as mere content of thought, having an existence independent of the mind, cannot legitimately be identified with the ideas of subjective or of absolute idealism, which are dependent on the mind's activity. Yet there are points in Plato that are suggestive of Hegel. Hegel himself awards to Plato the honor of having invented dialectic, and compares his own theory, that education or development is required to bring out into consciousness what is therein contained, with the Platonic doctrine, that all learning is reminiscence, and that the truth of all things always existed within the soul. Plato's notion of a graded series of ideas is another principle that has become fruitful in the philosophy of Hegel.

The view of Aristotle, the Stoics, and the Epicureans, that all error should be referred to the judgment, is upheld by Descartes, who maintains that we err only when we judge of what we do not clearly and distinctly perceive; and also by Locke, who insists that no ideas, as they appear in the mind, are either true or false, but that all truth and falsity belong to propositions which *relate* ideas. Like Aristotle, again, Leibniz recognizes two kinds of non-demonstrative or intuitive knowledge,—the contingent facts of experience and the universal apodictic principles of reason. In his recognition of a passive and an active element in the mind, Aristotle may be compared with Kant, although the former makes the reason

partly active and partly passive, while the latter, differentiating the faculties of the mind, assigns its receptivity to the sensibility and its activity to reason. It should be noted, too, that Kant's doctrine of the spontaneity of reason, which regards the objects of thought as a product of the thinking process, differs radically from Aristotle's view, which regards these objects as existent independently of thought. Like Aristotle, also, Kant places much emphasis on the deduction of the categories of the understanding; but in the epistemology of Kant a new significance is attached to the term. While the categories of Aristotle are simply the highest classes under which the objects of knowledge may be subsumed, or the most general forms in which being may be expressed, the categories of Kant constitute the formal element in the mind's activity, not an abstraction from experience, but a necessary condition of all experience.

The search of the Stoics for a universal standard as the test of truth is repeated by Descartes, and their criterion of irresistibility or the power of carrying conviction varies but slightly from the Cartesian criteria of clearness and distinctness. In the doctrine of the sensational origin of knowledge, and in the limitation of the activity of the mind to the combination of perceptions, in the denial of innate ideas, and in the picturing of the soul at birth as an empty tablet, the epistemology of the Stoics bears a striking resemblance to that of Locke.

The Skeptical tropes, which, as we have seen, tend mainly to establish the subjectivity of sense perception, embody the arguments which prompt Descartes to characterize as confused knowledge the impressions gained through the senses, and which induce Locke to make the distinction before alluded to between the primary and secondary qualities of things. The trope based upon the differences in perceptions gained through the various senses anticipates, in a measure, some of the most forcible arguments in Berkeley's *New Theory of Vision*. Still more suggestive is the trope which impresses the thought that things as we know them do not exist absolutely, but that

all things exist in mutual relation. This thought assumes great significance in the Hegelian system, and becomes a central principle in the philosophy of Lotze. We must look for the being of things, according to Lotze, "in the reality of the relations in which the things stand to each other. . . . Not to be at any place, not to have any position in the complex of other things, not to undergo any operation from anything, nor to display itself by the exercise of any activity upon anything—to be thus void of relation is just that in which we should find the nonentity of a thing if it was our purpose to define it."¹ The Skeptical conclusion that knowledge can apprehend nothing beyond phenomena is suggestive of Kant's distinction of cognizable phenomena from the unknowable noumena, of Spencer's contrast of appearance with an unknowable reality, and of the attitude of Comte and other Positivists, who confine all their investigations within the field of phenomena and declare, with unhesitating assurance, that nothing absolute exists. Finally, the Skeptical tendency, as a whole, finds its chief analogue in Hume. He differs from the Skeptics, however, in justifying inquiry within its proper sphere and in condemning only such assumptions as are not, and can never be, supported by the guaranty of sense perception, the ultimate source, according to Hume, of all our knowledge. "Should it be asked of me," says Hume, "whether I be really one of those Skeptics who hold that all is uncertain, and that our judgment is not in *any* thing possessed of any measures of truth and falsehood, I should reply that this question is entirely superfluous, and that neither I nor any other person was ever sincerely and constantly of that opinion. Nature, by an absolute and uncontrollable necessity, has determined us to judge as well as to breathe and feel."² "The great subverter of Pyrrhonism, or the excessive principles of skepticism, is action or employment, and the occupations of common life."³ But there is a more moderate skepticism which "may be under-

¹ Lotze, *Metaphysic*, vol. I, p. 39.

² Hume, *A Treatise on Human Nature*, vol. I, pp. 474 and 475.

³ Hume, *Enquiry concerning Human Understanding*, p. 158.

stood in a very reasonable sense, and is a necessary preparative to the study of philosophy by preserving a proper impartiality in our judgments and weaning our mind from all those prejudices which we may have imbibed from education or rash opinion.¹ . . . Another species of mitigated skepticism, which may be of advantage to mankind and which may be the natural result of the Pyrrhonian doubts and scruples is the limitation of our inquiries to such subjects as are best adapted to the narrow capacity of the human understanding."²

Thus we catch glimpses in the philosophy of the Greeks of thoughts often regarded as the special contribution of modern theories of knowledge. With but a dim apprehension of the creative activity of the mind, the Greek philosophers did not clearly perceive the fact that the question of the validity of knowledge is inseparably bound up with the problem of the ultimate nature of things — that a rational metaphysics must of necessity rest upon a sound basis of epistemology. In their day epistemology never advanced to the dignity of a science, but they gathered together much of the material that has made that science a possibility.

¹ Hume, *Enquiry concerning Human Understanding*, p. 150.

² *Ibid.*, p. 162.

CONCLUSION

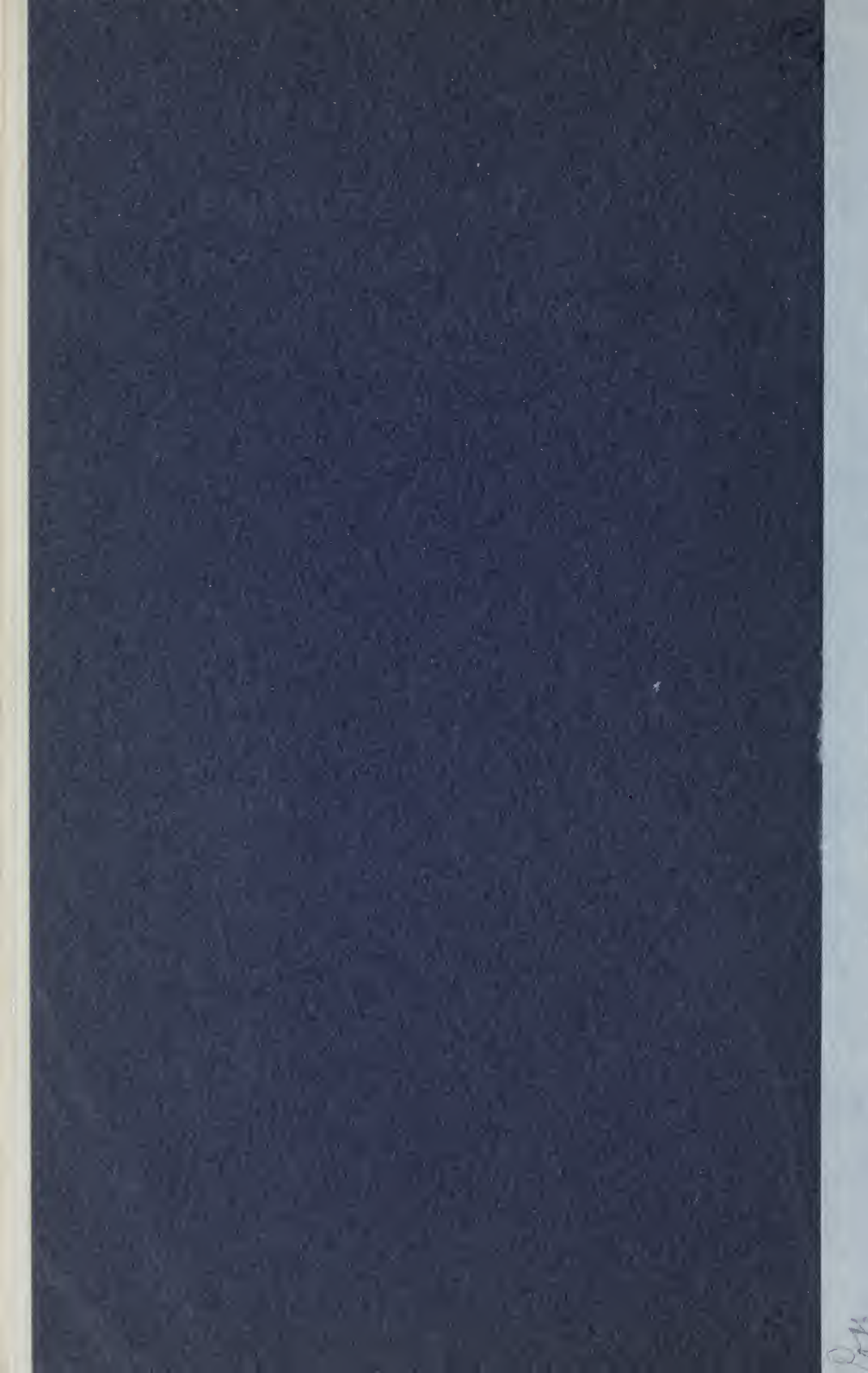
FROM a study of the various problems considered in this paper, as developed in Greek and modern philosophy, it becomes manifest that the germs, or fundamental elements, of the leading metaphysical and epistemological systems of modern times existed already in the philosophy of the Greeks. Although the foremost philosophical systems of our day, with their more scientific equipment, their wider outlook, and their keener apprehension of problems, bear little resemblance on the surface to the speculations of Heraclitus, Parmenides, or Democritus, of Plato, Aristotle, or Aenesidemus, an analysis of both ancient and modern systems into their essential elements not only brings to light many remarkable agreements, but discloses the fact that the leading ideas of the Greeks are as vital and vivifying to-day as they were more than two thousand years ago. We have seen virtually the same problems engaging the attention of philosophy throughout all ages; we have observed similar motives giving rise in widely separated times to similar solutions; and we have discovered, amid multifarious changes in method and detail, a unity of purpose which dominates the whole history of speculative thought. While each age has furnished its contribution to a constantly evolving philosophy, it has been the special work of modern thinkers to support, by observation and demonstration, the prophetic conceptions grasped by the Greeks through intuition; to correct one-sided tendencies, improve imperfections, and clear up cloudy and confused ideas; and to systematize and coördinate uncorrelated truths.

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GREEK FORESHADOWINGS
OF MODERN METAPHYSICAL
AND EPISTEMOLOGICAL THOUGHT

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